CLAIMS

1. A bolometric detector comprising at least a receiving antenna (2a, 2b, 2c, 2d) for collecting electromagnetic waves, the receiving antenna having a load resistance, a resistive load for converting the power from the electromagnetic waves into heating power, a thermometric component (4) for measuring the rise in temperature, relatively to a reference temperature, associated with the heating power, characterized in that the resistive load is formed by the load resistance of the antenna and in that the thermometric component is electrically insulated from the load resistance of the antenna.

2. The bolometric detector according to claim 1, characterized in that the thermometric component is a diode (4).

3. The bolometric detector according to claim 2, characterized in that the receiving antenna consists of four metal separate components (2a, 2b, 2c, 2d) arranged in the shape of a cross around a central portion (7) so that the first two metal components are aligned along a first axis (AA') and the two other ones are aligned according to an axis perpendicular to the first axis (AA'), wherein the metal components (2a, 2b, 2c, 2d) are arranged on a silicon layer (1), the silicon layer has, at the central portion (7), a recess so that diode (4) is hung above a silicon substrate (8), in that it comprises means for hanging the diode (4) comprising at least a set of two metal arms (3a, 3b), wherein a first metal arm (3a) is connected to a first metal component (2a) and the second metal arm

(3c) is connected to the metal component (2c) which is aligned with the first metal component (2a).

4. The bolometric detector according to claim 3, characterized in that the receiving antenna, the diode (4) which comprises the thermometric component and the means for hanging the diode (4), define, as seen from above, an occupied space with a square shape, wherein the side of the square has a length substantially equal to the wavelength of the detected wave.

5. The bolometric detector according to claim 3, characterized in that the receiving antenna, the diode (4) which comprises the thermometric component and the means for hanging the diode (4), define, as seen from above, an occupied space with a square shape, wherein the side of the square has a length substantially equal to the half of the wavelength of the detected wave.

6. An imaging device comprising at least a bolometric detector, characterized in that the bolometric detector is a detector according to any of claims 1 to 5.

7. The imaging device according to claim 6, characterized in that it comprises at least a set of four bolometric detectors arranged side by side and the diodes (4) of which are mounted in parallel.

8. The imaging device according to claim 6, characterized in that it comprises at least a set of four bolometric detectors arranged side by side and the diodes (4) of which are mounted in parallel, two first bolometric detectors for collecting waves of the TE

type and two other ones for collecting waves of the TM type, wherein diodes (4) of the first two bolometric detectors are associated according to a first parallel circuit and the diodes of the two other bolometric detectors are associated according to a second parallel circuit.

9. The imaging device according to claim 8, characterized in that each bolometric detector comprises a second diode (11) placed in the vicinity of diode (4) which forms the thermometric component, wherein the second diode (11) enables all or part of the parasitic signals received by the bolometric detector to be removed through differential readout of the signals which it generates and of the signals derived from diode (4).

10. A method for manufacturing a bolometric detector comprising a receiving antenna and a thermometric component, characterized in that it consists in the following steps:

- a step for producing a structure formed by the stacking of a silicon substrate (8), an oxide layer (9) and a silicon layer (1) grown by epitaxy,
- a step for producing a doped area (Z1) in the silicon layer (1) in order to form the thermometric component as a diode (4) and to cover the silicon layer (1) with a silicon oxide layer (10),
- a step for producing the electric contacts (C1, C2) of the diode (4),
- a step for producing, by depositing a metal on the silicon oxide layer (10), the metal components (2a, 2b, 2c, 2d) forming the receiving antenna,
- a step consisting of dry etching the oxide (10) and the silicon (1) layers in order to define a

recessed area which localizes the diode (4),

- a step consisting of depositing a passivation layer (11) and of etching this layer (11) in order to leave free access to the electric contacts (C1, C2) of diode (4) and areas for recovering electric contact with the antenna metal components,

- a step consisting of depositing a conducting layer (12) on the electric contacts (C1, C2) of diode (4), on the areas for recovering electric contact with the antenna metal components and on the recessed area which localizes the diode (4),

- a step for removing the oxide located under the diode (4) and under the recessed area which localizes the diode (4) in order to create a cavity (7).

11. Method for manufacturing a bolometric detector according to claim 10, characterized in that it comprises an extra step consisting of etching the silicon substrate (8) under the antenna metal components.